			17		
		130	140	150	160
1093 422		ノししみじしみしほね	キリリチひりにさいことから		TT M.tuberculosis
422	AAGCEEE	CCAGCACGA	$\mathtt{STGATGTCGTC}$	אווייז כככבוויז יי	O'C'C NA
507		A SUPPLIED OF	STGATGTCGTG	T	**************************************
432	JAAADDDD	/UCAMUAUGA(THORNGTEGTE	ᄺᅋᄭᅩᄼᄼᅄᆑᇬᇎ	10°00 s.4 3
207	JAMADDDD	CCAGCACGA	TWATGTCGTG	ガケッとこことがあっ	10°m by
150	JAMARODO	A SUA CACIFAL	$\mathbf{H}^{\prime\prime}$ GATGTCGTG	$\mathbf{m}_{\mathbf{m}}$	1CTD 14 1-
2588	GGGGAAAC	CCGGCACGA	STGATGTCGTG	TCACCAGGCG	CT M.kansasii CT M.smegmatis
				-r	
		210			240
1172	CATCTCAG	TACCCGTAGE	AGCAGAAAAC	AATTGTGATT	CC M.tuberculosis
501	ONICIONG	LACCUGTAGE	AGMAGAAAAC	ሺ ሺ ጥጥር! ጥር! እ ጥጥ _ነ	CC M and
501	CATCTCAG	TACCCGTAGG	AGAAGAAAAC:	A A TTC TC A TT	CC M nonetral
586 511	CAICICAG	IACCCGTAGA	IAGIAIAGA AA ACT	₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽	CC M nhini
286	CATCICAG	TACCCGTAGG	AGAAGAAAC:	AATTGTGATT(CC M.leprae
229	CATCTCAG	TACCCGTAGG	AGMAGAAAAC!	AAAAGTGATT	CC M.gastri
2667	CATCTCAG'	PCCCGTAGG	AGAAGAAAAC	AAAAGTGATTO	CC M.gastri CC M.kansasii CC M.smegmatis
		-[]	WHO YOU WHATCH	-MATG.I.GAT.I.(CC M.smegmatis
		7		· · · · · · · · · · · · · · · · · · ·	
		330	340 3	350	360
1289	TGTGGGAG-	GATATGTCT	CAGCGCTACCC	GGCTGAGA-G	G M.tuberculosis
OI /	TGTGGGAI.	GATATGTCT	CAGCIICTACCH	IGGCTGAGG-G	C M arrium
OTI	TGTGGGWL.	GATATGTCT	CAGCIICTACCII	iggereack-c	C M nanatuhana
, 00		7 PER SECTION AND A SECTION AS	·AMCCMCCCC		
02.5	TOLGGGWLJ	GGTATGTCT	CAACIICTACCII	GGMTGAGG-G	G M lennae
	TO TO COSAL (GHINGICIC	JAGUIIUTACCC	GGCTCACK-C	ic M asetri
	TGTGGGACC	PATAPETCT(AGUICTACCC	GGCTGAGG-G	GG M.kansasii
			-PACIFIC TACCI	GGCT.GEGAGG	G M.smegmatis

Figure 1A



				- <u></u>	
	370	380	390	400	
1327	CAGTCAGAAAG	TGTCGTGGTTAGCC	GAAGTGGCCT	GGGAT M.tuberculo	gig
656	MAGTCAGAAAG:	TGTCGTGGTTAGC	GAAGTGGCCT	GGGAD M.avium	313
656	TAGTCAGAAAG:	rGTCGTGGTTAGC	GAAGTGGCCT	GGGAC M.paratuber	<u>_</u>
742	MAGTGAMAAAG	CAGTGTGGTTAGGT	GAAGTGGCCT	GGGAT M.phlei	
668	MAGTCAGAAAG	GCGTGGTTAGCC	GAAATGGCCI	GGGAT M.leprae	
443	CAGTCAGAAAG	rgtcgtggttaAc	gaagtggcc1	GGGAT M.gastri	
386	CAGTCAGAAAGT	rgtcgtggttaac	GAAGTGGCCT	GGGAT M.kansasii	
2823	CAGTGAGAAAA	rgtegttagco	GAAATGGCTT	GGGAT M.smegmatis	
				····	
	450	460	470	480	
1406	CGGCACCTGCCT	AGTATCAATTCCC	CGAGTAGCAGC	GGGCC M.tuberculo	sis
735	CGGCACCTGCCT	TATATCAACACCC	CGAGTAGCAGC	GGGCC M.avium	
735	CGGCACCTGCCT	TATATCAAC <u>A</u> CCC	CGAGTAGCAGC	GGGCC M.paratuber	c.
820		TCACAGGTCCC			
747		TGTATCAATTCCC			
522		TGTATCAATTCCC			
465		TGTATCAATTCCC			
2902	ceacencrenci	HGATGGTGTTCCC	CGAGTAGCAGC	CGGGCC M.smegmatis	
	490	500	510		
			510	520	
1446				GTAAG M.tuberculo	sis
775				GTAAG M.avium	
775	CGTGGAATCTGC	TGTGAATCTGCCG	GGACCACCCG	GTAAG M.paratuber	c.
857	CGTGGAATCTGC	TGTGAATCTGCCG	GGACCACCCG	GTAAG M.phlei	
787		TGTGAATCIGCCG			
562		TGTGAATCTGCCG			
505 2942		TGTGAATCTGCCG			
2942	CGTGGAATCIIGC	TGTGAATCIIGCCG	GGACCACCCG	GTAAG M.smegmatis	

Figure 1B



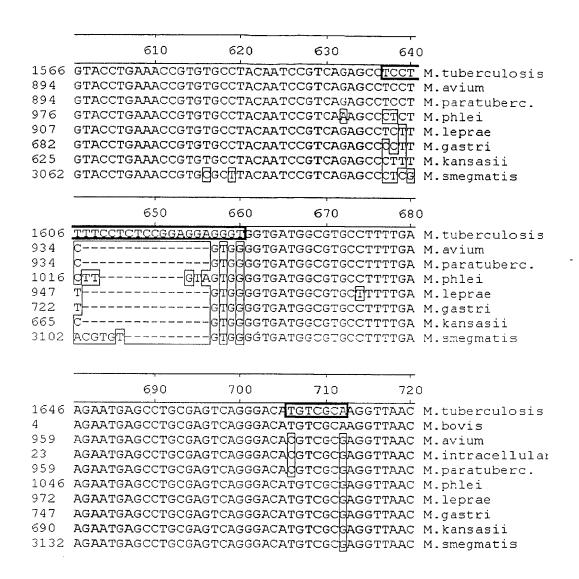


Figure 1C

io. Fla. Lost pupolassi

		7				
		770	780	790	800)
1726	GACCCA	ACACGCGCAT	ACGCGCGTGTG	AATAGTGGC	GTGT	M.tuberculosis
84	CGACCCA	ACACGCGCAT	ACGCGCGTGTG	AATAGTGGC	GTGT	M.bovis
1039	CG	CATCCCCIT		AGTGGC		M.avium
103	CG	CAITCCCCIT	rggggrgr	AGTGGC		M.intracellular
1039	CG	CATOCCTTT	rggggrgt	AGTGGC		M.paratuberc.
1126	1 1	CAACCTGTTG		AGTGGT	GTGT	M.phlei
1052	1	CACGIIGITGA		AGTGGC		M.leprae
827	CGTAT	CACGCGTAA		AGTGGC		M.gastri
770	CGTAT	CGCGCGCGA	SCGIGIGI	AGTGGC		M.kansasii
3212	CGTAT	CCACACAAG	AGTGTGTGGTG	TAGTGGT	GTGT	M.smegmatis
				*		
				-		·
		970	980	990	100	n '
1926	אתתתחתות	TCCD CCCTTTC	GCGTGGTTCAC	4		_
1228	ATTTAGG	TGCAGCGIIC	CGTGGTTCAC	COCCAGGT.	AGAG	M.tuberculosis
	ATTTAGG	TGCAGCGTTG	CGTGGTTCAC	CACGGAGGI.		M.avium
1322	ATTTAGG	TGCAGCGTB	CATGITTCFT:	ATCGGAGGI.		M.paratuberc. M.phlei
1244	ATTTAGG	TGCAGCGTTG	CGTGGTTCAC	CACGGAGGT		M.leprae
1019	ATTTAGG	TGCAGCGTTG	CGTĠTTTCAC	CACGGAGGT		M.gastri
962	ATTTAGG	TGCAGCGTTC	GEGETTTCAC	CACGGAGGT	AGAG	M.kansasii
3408	ATTTAGG	TGCAGCGT	CATGUTTCIT	GCGGAGGT		M.smegmatis
						· · · · · · · · · · · · · · · · · · ·
				-		
		1050	1060	1070	100	`
0005					1080	
1207	CAGCCAA	AUTCCGAATG	CCG-TGGTG-	TA-AAGCGT	GGCA	M.tuberculosis
1307	CAGCCAA	ACTOCGAATG	CCG-TGGTG-	l'AIAAAGCGT(GGCA	M.avium
	CAGCCAA	ACTCCGAATG ACTCCGAATG	CCCDUDAC	TAIAIAAGCGT	GGCA	M.paratuberc.
				IGAAAGIIGT	GGCA	M.pnlei
1098	CAGCCAA	┸╱╏СССТУУ ТСФСССТУУФС	CCG-TGGTT-		JGCA ZCCA	M. Teprae
1041	CAGCCAA	ACTCCGAATG	CCG-TGGTG-1	TATIA GCGT	GCA GCCD	M. Gastri
3486	CAGCCAA	ACTOCGAATG	CCGGTBACCC		acMp acca	M.smegmatis
		CIOUDANIC	~~~GITERRUGE	Autonia M	2 GHW	ri. amegmatia

Figure 1D



			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
		1130	1140	1150	1160	
2082	ACAGCC	CAGATCGCCG	GCTAAGGC	CCCCAAGCGTG	TGCTA M.tuberculosis	_
1385	ACAGCC	CAGATCGCCG	GCTAAGGC	CCMAAGCGTG	TGCTA M.avium	3
1385	ACAGCC	CAGATCGCCG	GCTAAGGC	CCHAAGCGTG	TGCTA M.paratuberc.	
1479	ACAGCC	CAGATCGCCG	GCTAAGGC	CCMAAGCGTG	TGCTA M.phlei	
1401	ACAGCC	CAGATCGCCG	GCTAAGGC	CCMAAGCGTG	TGCTA M.leprae	
1175	ACAGCC	CAGATCGCCG	GCTAAGGC	CCAPAGCGTG	TGCTA M.Jeprae TGCTA M.gastri	
1118	ACAGCC	CAGATCGCCG	GCTAAGGCC	CCADAGCGTG	TGCTA M.kansasii	
3566	ACAGCC	CAGATCGCCG	GMTAAGGCC	CCMAAGCGTM	TGTTA M.smegmatis	
-			,oE111810000	CONTRACT III	IGUIA M.SMegmatis	
				· 		
		1001				
		1290	1300	1310	1320	
2241	CTCAAG	CACACCGCCG	AAGCCGCGG	CACATCCACC	TTGT- M.tuberculosis	
1544	CTCAAG	CACACCGCCG	AAGCCGCGG	CACATHCARC	TT-TA M.avium	
1544	CTCAAG	CACACCGCCG	AAGCCGCGG	CACATHCAHC	TT-TA M.paratuberc.	
1638	CTCAAG	CACACCGCCG	AAGCCGCGG	CAF-ATCAGCE	TITG M.phlei	
1560	CTCAAG	CACACCGCCG	AAGCCGCGG	CACATICACC	TTOTA M.leprae	
1334	CTCAAG	CACACCGCCG	AAGCCGCGF	CAFACC	GCA M.gastri	
1277	CTCAAG	CACACCGCCG	AAGCCGCG	CAACC		
3726	TTCAAGG	CACACCGCCG	AAGCCGCGG	AAGCCAAC	STITE M. smegmatis	
				.t	JIMIP III SINGGINACIS	
		1330	1340	1350	1360	
2280	-GGTGG	GTGTGGGTAG	GGGAGCGTC	CCTCATTCAGO	CGAAG M.tuberculosis	
1583	GGTGG	TGTGGGTAG	GGGAGCGTC	CCCCATTCAGO	CGAAG M.avium	
1583	deereek	TGTGGGTAG	GGGAGCGTC	CCCCATTCAGO	CGAAG M.paratuberc.	
1676	пессте	- STGTGGGTAG	GGGAGCGTC	CFGCATGCGGF	GAAG M.phlei	
1600	GGTGGF	TGTGGGTAG	GGGAGCGT	CCTCATTCAGO	CGAAG M.leprae	
1367	AGGTF-	TGGGTAG	GGGAGCGTC	CCTCATTCAGO	CGAAG M.gastri	
1310	AGGT	TGGGTAG	GGGAGCGTC	CCTCATTCAGC	CGAAG M.kansasii	
3764	TT	TGGGTAG	GGGAGCGTC	che-Andeler	GAAG M.smegmatis	
					Jorano M. Smegmacis	

Figure 1E

\$ 1.00 CM



				
	1370	1380	1390	1400
2319	CCACCGGGTGACCGG	TGGTGGAGG	TGGGGGAGT	GAGAAT M.tuberculosis
1623	CT-CCGGGTGACCGG	TGGTGGAGG	TGGGGGAGT	GAGAAT M.avium
1623	ch-cesstaffics	TGGTGGAGG	TGGGGGAGT	GAGAAT M.paratuberc.
1716	COCCEAGTGATICGG	TGGTGGAGG	TGRGGGAGT	GAGAAT M.nhlei
1640	CCTCCGGGTAACCGG	TGGTGGAGGG	TGGGGAAGT	GAGAAT M.lenrae
1402	CCCCGGGTGACCG	TGGTGGAGGF	TGGGGGAGT	GAGAAT M.gastri
1345	CFGCCGGGTGACCGG	TGGTGGAGG	TGGGGGAGT	GAGAAT M.kansasii
3796	CCCCGAGTATCGAG	TGGTGGAGGG	тепесевет	GAGAAT M.smegmatis
	- 6		.10[]00001	2101111 III. Smegmae 13
				
	1410	1420	1430	1440
2359	GCAGGCATGAGTAGC	GACAAGGCAA	GTGAGAACC	TTGCCC M.tuberculosis
1662	GCAGGCATGAGTAGC	CGATTAAGGCAA	GTGAGAACC	TTGCCC M.avium
1662	GCAGGCATGAGTAGC	GATAAGGCAA	GTGAGAACC	TTGCCC M.paratuberc.
1756	GCAGGCATGAGTAGC	GATAAGGCAA	GTGAGAACC	rTMCCC M.phlei
1680	GCAGGCATGAGTAGC	GAHAAGGCAA	GTGAGAACC	TTGCCC M.leprae
	GCAGGCATGAGTAGC			
				TTGCCC M.kansasii
				TTGCCC M.smegmatis

	1570	1580	1590	1600
2519	CCCCGTGACGAATC	A-GCGGTACT	AACCACCCA	AAACCG M.tuberculosis
1821	CGTCCCTGATGAATC	A-GCGGTACT	'AACCACCCAI	AAACCG M.avium
1821	CGICCOTGAIGAATC	A-GCGGTACT	'AACCACCCA	AAACCG M.paratuberc.
1915				
1840		A-GCGGTACT	BACCACCCA!	AAACCG M.leprae
1602	1 1			
	CGCCCGTGATGAATC	A-GCGGTACT	'AACCACCCAI	AAACCG M.gastri
1545				AAACCG M.gastri AAACCG M.kansasii

Figure 1F



	161			1630	164	•
2558	GAT-CGATCAC	-TCCCCTTC	GGGGG-TO	TGGAGTTC-	TEC	M.tuberculosis
1860	GAT-CGACCAT	-recerre	cecece	TGGGGATH-	Rec	M avium
1860	GAT-CGACCAN	TCCCCTTC	GGGGGC-	TECHERTH	dec	M.paratuberc.
1955	GGG-CGATCE-	ATCC -TTC	GGGGFFF	TELCECTE	700	M phlai
1879	GAT-CGACCAL	ATCCCCTTC	:GGGGGGTT	TGAGGTT	haa	M longs
1641	GAT-CGATCAC		GGGGGA-C	TICCACCTE	.πcc	M dogtai
1584	GAT-CGATCAC	:-TCCCCTTC	GGGGGG	TEGRECAC	mcc.	M. Sangarii
4035	ACCGTGADCGC		GGGGGF-TG	arceHemmee	mcc	M.smegmatis
1000	100010.490Bc	ACOVE TITE	.aaaa⊟_10	a 1 G G G G 1 1 G G	TGG	M.smegmatis
						
	1650		- •	1670	168	-
2594	GGCTGCGTGGG	AACTTCGCT	GGTAGTAG	TCAAGOGAA	GGG	M.tuberculosis
1896	GGCTGCGTGGG	ACCTTCGCT	GGTAGTAG	TCAAGCAAT	GGG	M.avium
1896	GGCTGCGTGGG	ACTTCGCT	GGTAGTAG	FTCAAGCHAH	GGG	M.paratuberc.
1986	GGCTGCGTGGG	ACCCG-GTG	GGTAGTAG	TCAAGCGAT	GGG	M.phlei
1917	GGCTGCGTGGG	AACTTCGTT	GGTAGTAG	TCAAGCGAIT	GGG	M.leprae
1677	GGCTGCGTGGA	GCTTCGCT	GGTAGTAG	TCAAGCGAT	GGG	M.gastri
1620	GGCTGCGTGGA	GCTTCGCT	GGTAGTAG	TCAAGCGAT	GGG	M.kansasii
4071	GGCTGCATGGG	Adcttcgfft	GGTAGTAG	TCAAGCGAT	GGG	M.smegmatis
						5 9 4015
						
	1690	170	00	1710	172	0
2634	-GTGACGCAGG	AAGGTAGCC	GTACCAGT	CAGTGGTAP	CA-	M.tuberculosis
1936	-GTGACGCAGG	aaggbagco	GTACCAGT	CAGTGGTAA	ΠA-	M.avium
1936	-GTGACGCAGG	AAGGCAGCC	GTACCAGT	CAGTGGTAA	ma_	M.paratuberc.
2025	-GTGACGCAGG	AAGGTAGCC	GTACCAGT	CAGTGGTAA	ma_	M.phlei
1957	-GTGACGCAGG	AAGGTAGCC	GTACCAGT	CAGTGGTAA	шд_ - Г	M.leprae
1717	-GTGACGCAGG	AAGGBAGCC	GTACCAGT	CACTCCTAN	ma -	M.qastri
1660	-GTGACGCAGG	aagghaggg	GTACCAGI	CACTOCIAN	11/A -	M.kansasii
4111	-GTGACGCAGG		CTACCAGI CTACCECT	CAGIGGIAA	Th.	
	C - C/1CC CAGG	AAGGIAGCC	GINCODGI	AAT DET DA.	TA-	M.smegmatis

Figure 1G



						
		1730	1740	1750	176	=
2672	-CTGGGG	CAAGCCGG	RAGGGAGAGC	GATAGGCAAA	rccer	M.tuberculosis
1974		UAAGUUDG']	!'AGH−IAGAGC	ימ ממססססראם!	TOCOM.	M assium
1974	C1GGGG	JAAGCCDG1	'AGH- AGAGC	'GATAGGCAAA'	TCCGT.	M naratubona
2063	-0066666	TAMACCITG1	'AGGGIGAGIT	'GATAGGCAAA	rccer.	M nhlei
1995	-CTGGAG	CAAGCCPGI	'AGGGAGAGC	GATAGGCAAA	rccgr	M lenrae
1755	-CTGGGG	CAAGCCAGI	'AGGGAGAGC	GATAGGCAAA	rccgr	M dastri
1698	-CTGGGG	CAAGCCAGI	'AGGGAGAGC	GATAGGCAAA	PCCGT.	M karcasii
4149	-c gee ge	DAAGCCHGI	AGGGAGTCA	GATAGGTAAA	CCGT	M.smegmatis
		_	<u> </u>	<u> </u>		**** g
	·					
		1970	1980	1990	200	0
2908	AGGGGGA	CCGGAATAT	CGTGAACAC	CCTTGCGGTGG	GAGC	M.tuberculosis
2208	AGGGGGG	CGGAATA	CGTGAACAC	CCTTGCGGTG	GAGC	M. euserculosis
2208	AGGGGGG	CGGAATAC	CGTGAACAC	CCTTECGGTG0	GAGC	M.paratuberc.
2298	AGGGGGAC	CCACGTAC	CGTGAGGGC]CTTGCGG[GG	- Pacc	M.palacuperc.
2231	AGGGGGG	CGGAATAT	CGTGAACAC	CCTTGCGGTG	GAGC	M lennee
1910					07.00	M.gastri
1934	AGGGGGAC	CGGAATA	CGTGAACAC	CCTTGCGGTGG	GAGC	M karsasii
4385	AGGGGGAC	CCACATGG	CGTGMAAGC	TTTACGGCC	DAGC	M.smegmatis
				U CE		
	2	410	2420	2430		
2245					2440	
284	ACCTCGAC	SCCAGTTGG	GGCEGAGTC	GTTGTTGAAAT	'ACC M	.tuberculosis
2645	ACCTOGACO	CCAGTTGG	GGCGGAGTC	GTTGTTGAAAT	'ACC M	.bovis
L	JUACAGACO	SCCAGT TIG	LGIGGAGTC	GTTGTTGAAAT	'ACC M	.avium
2645	ALACAGACO	CCAGTITIG	TATEGAGTC	FTTGTTGAAAT	'ACC M	.intracellulare
2737	CTCGGACC	CCAGTITIG		FITGTTGAAAT	ACC M	.paratuberc.
2668	SCHECE CO	CHVCLLCC	GCTCCTCTC	TTGTTGAAAT TTGAAAT	ACC M	.pniei
1910	E1-00A00	OFWG I IGG	GGEGAGIC	arignigaaan		
	ACCTCMACC	CCAGTTGG	сеПселето	STTGTTGAAAT	M	.gastri
4822	CTCACAC	പ്രച്ചു പ്രവാദ	GCMCGAGTC	STTGTTGAAAT STTGTTGAAAT	ACC M	. Kansasıı
		والطب وحدد	Hagyarcı C(STIGITGAAAT	ACC M	.smegmatis

Figure 1H

	2450	2460	2470	2480	
3385	ACTCTGATCGTATT	GGGCATCTAAC	CHOCATACCO	TGAATC M.tuberculos	
324	ACTCTGATCGTATT	GGGCATCTAAC	CTCGAACCC	GAATC M.tuberculos	is
	ACTCTGATCGTATT	GGMCAHCTAAC	CTCGAACCC.	GAATC M.bovis	
433	ACTCTGATCGTATT	GGACAGCIAAC	GICGAACCC	T-TATC M.avium T-TATC M.intracellu	
	ACTCTGATCGTATT	GGACAGCTAAC	COCCARCCO	TATC M.intracellu TATC M.paratuberc	lare
2777	ACTCTGATCGTATT	GGGCDTCTAAC	BICGAACCC.	TATC M.paratuberc	•
2708	ACTCTGATTGTATT	SEECHTCTAAC	CTCCDACCG.	rgsarc M.phlei	
1910		or rotace	CICGAACCG.		
		GGACACCTAAC	Bresnacee	M.gastri FGAATC M.kansasii	
4862	ACTCTGATCGTATT	GGCCCTCTAAC	CTCGGACCC	CATATO M. kansasii	
		000001011110	Orcodinced:	MIAIC M.Smegmatis	
					
	2490	2500	2510	2520	
3425	GGGTTTAGGGACAG	TGCCTGGCGGG	TAGTTTAACT	GGGGC M.tuberculos	i ~
364	GGGTTTAGGGACAG	rgcctggcgg	TAGTTTAACT	GGGGC M hovis	7.2
2724	GGGTTDADGGACAG	rgcctggcggg	TAGTTTAACT	GGGGC M avium	
472	GGGTTDADGGACAG	FGCCTGGCGGG	TAGTTTAACT	GGGGC M intracellu	معدا
2724	GGGTTDADGGACAG	FGCCTGGCGGG	TAGTTTAACT	GGGGC M naratuhona	rare
2817	PGGTTPAGGGACAG!	rgcctgghggg	TAGTTTAACT	GGGGC M phlei	•
2748	GGTTTAGGGACAG:	reccreeces	TAGTTTAACT	GGGGC M.lenrae	
1910				M destri	
2452	GGGTTPAPGGACAG	rgcctggc c gg	TAGTTTAACT	GGGGC M kangagii	
4902	GGGTTCAGGGACAG	reccredileee	TAGTTTAACT	'GGGGC M.smegmatis	
	_	<u></u>		· · · · · · · · · · · · · · · · · ·	
	2930	2940	2950	2960	
2061					
2162	AGTACGAGAGGACCO	GGACGGACG	ACCTCTGGT	GCACCA M.tuberculo:	sis
3163	AGTACGAGAGGACC	GGGACGGACGF	VACCTCTGGT	ATACCA M.avium	
2763	AGTACGAGAGGACC(GGACGGACGA	VACCTCTGGT	ATACCA M.paratuber	₹.
3436	AGTACGAGAGGACC	GGACGGACGA	ACCTCTGGT	ATACCA M.phlei	
3 T R /	AGTACGAGAGGACC	GGACGGACGA	ACCTCTGGT	ATACCA M.leprae	
1910				M.gastri	
2891	AGTACGAGAGGACC	GGACGGACGA	ACCTCTAGT	GCACCA M.kansasii	
5342	AGTACGAGAGGACC	GGACGGACGA	ACCTCTGGT	ATACCA M.smegmatis	

Figure 11

Lans Caul.Ass

10/31

					
	297	23.00	2990	3000	
3904	GTTGTCCCGCC	AGGGGCACCGCT	GGATAGCCACG	PTCCdm M	
3203	GTTGTCCCAC	AGGGGCAC <mark>G</mark> GCT	GG NT NG CONCG.	7	.tuberculosis
3203	GTTGTCCCACC	AGGGGGTCGGG	CCATAGCCACG	1.1	.avium
3296	GTTGTCCCACC	TOOLOGO CACOLOGO T	GGATAGCCACGT		.paratuberc.
3227	GTTGTCCCACC	AGGGGCACCGCT	GGATAGCCACGI	TTCGGA M	.phlei
		AGGGGCACCGCT	GGATAGCCACGI	TCGGA M	.leprae
1910					.gastri
2931	GTTGTCCCACC	AGGGGCACCGCT	ggatagcffacgi	יייירמכולא אי	.kansasii
5382	GTTGTCCCACC	AGGGGCACGGCT	GGATAGCCACGT		.smegmatis
					· Smegmatis
					
	3010	3020	3030	3040	
3944	CAGGATAACCCC	COCA A A COA COA	7.000		
3242	CAGGATAACCG	TGAAAGCATCTA	MGCGGGAAACC	TTCTC M.	tuberculosis.
3243	CAGGATAACCG	JIGAAAGCATCTA	VAGCGGGAAACC	TTCTC M.	.avium
-	CAGGATAACCGC	TGAAAGCATCTA	AGCGGGAAACC	TTCTC M.	paratuberc.
3336	CAGGATAACCGC	/TGAAAGCATCT#	AGCGGGAAACC	יוא ייייוייןיי	phloi
3267	CAAGATAACCG	CTGAAAGCATCTA	AGCGGGAAACC	TTCTC M.	leprae
1910					gastri
2971	CAGGATAACCGC	TGAAAGCATCTA	AGCGGGAAACC	ייי. אי שתרשר או	kangagii
5422	CAGGATAACCGC	TGAAAGCATCTA	AGCGGGAAACC		
				TOTIC M.	smegmatis
		-			
					
	3090	3100	3110	3120	
4023	CCCGC-AGAACA	CGGGTTCAATAG	TCAGACCTCGA	7) C C M M +	
609	CCCGC-AGAACA	CGGGTTCAATAG	TCNCACCIGGA	AGCI M.L	uberculosis
3322	CCCGC-AGAGCA	CCCCDDDCDDDD	HORGACCTGGA	AGCT M.E	povis
	CCCC-ACACCA	CCCCMMCCATAG	GCAGACCTGGA		vium
	CCCGC-AGACCA	CGGGTTCGATAG	HCAGACCTGGA		ntracellulare
	CCCGC-AGATCA	CGGGATITGATAG	GCAGACCTGGA	AGCT M.p	aratuberc.
	cccgc-agadca	CGGGATCGATAGE	AGCAGACCTGGA	dgcA м.р	hlei
3309				_ M.1	eprae
1910				M . a	astri
3050	CCCGC-AGAACA	CGGGTTCGATAGG	CAGACCTGGA:	AGCT M k	ansasii
5501	cccgc-aga g ca	CGGGATFGATAGE	CAGACCTGGA	_	megmatis
					ymac13

Figure 1J

	50)	60	70	80
2	GCGGCGTGCT	TAACACAT	CAAGTCGA	ACGGAAAGGT	CTC M.tuberculosis
141	COGCGTGCT	TAACACAT	CAAGTCGA	ACCC D D D C C T	CTC M barries
39	GCGGCGTACT	TAACACATO	CAAGTCGA	acceaaace H	CTC M arrive
1	L 1.	TAACACATO	CAAGTAGAZ	ここのはマンマのから	CCC NA
39	0000001001	IAACACATI	ICAACTICITAA	CCCDDDCCH	CTC No
2	TOUTOUT	TAACAAATC	CAAGTCGA	CGGAAAcch	CMC M canaful
40	0.000CG1GC1	IAACACATE	CAAGTCGAA	ACGGAAAGGT	CTC M langa
2		FAACACATG	CAAGTCGA	CGGAAAGGT	CTC M kancacii
2 40	GCGGCGTGCT	TAACACATG	CAAGTCGAA	ACGGAAAGGT	CTC M.gastri
1	GCGGCGTGCT	PAACACATG	CAAGTCGAA	ACGGTAAGGC'	TTC M.gordonae
Ţ	EGTGCT	I'AACACATG	CAAGTCGAA	CGGAAAGGT	CTC M.marinum
			1		· · · · · · · · · · · · · · · · · · ·
	90	1	00	110	120
42	T	TCGGAG	ATTACTCGAC	TCCCCAACC	GGT M.tuberculosis
181	T	<u>⊍.4</u> ₽₽₽ ∋∡∋∋∵	ATROTOGAG ATACTOGAG	TGGCGAACGG	GGT M.tuberculosis GGT M.bovis
79	T	TCGGAG	GTACTCGAG	TGGCGAACG(GGT M.bovis GGT M.avium
32	T	TCGGGG	TACTOGAG	TGGCGAACGG	GGT M.intracellulare
79	T	TCGGAG	GTACTCGAG	TGGCGAACGG	GGT M. Intracellulare
42	T	· ~ – 'I'CGGGG	GTACTCGAG	TGGCGAACGG	GT M saraful assum
80	TAAAAAATCTT	TTTTTAGAG	ATACTCGAG	TGGCGAACGG	GGT M.leprae
41	T	TCGGAG	ADACTCGAG	TGGCGAACGG	GGT M.kansasii
42	T	TCGGAG	ACTCGAG	TGGCGAACGG	GGT M.gastri
80	<u> </u>		STACACGAG	TGGCGAACGG	GGT M.gordonae
36	T	TCGGAG	ATACTCGAA	TGGCGAACGG	GGT M.marinum
					a substitution of the subs
	130	1.	40	150	1.60
70		_			160
209	GAGTAACACGT	'GGG <u>TG</u> ATC'	FGCCCTGCA	CTTC-GGGAT	TAA M.tuberculosis
107	GAGTAACACGT	GGG TGATC	l'GCCCTGCA:	CTTC-ცცც <u>ъ</u> т	DAM howie
59	GAGTAACACGT	'GGGCAATC'	FGCCCTGCA	CTTC-GGGAT	TAA M.avium
107	GAGTAACACGT	GGGCAATC	FGCCCTGCA:	CTTC-GGGAT	TAA M.intracellulare
70	GAGTAACACGT	GGGCAATC:	FACCCTGCA	СТТС-СССВТ	DA M naratuhara
120	GAGTAACACGT	GGGCAATC.	LGCCCTGCA	$CTTC-GGG\Delta$ T	AD M caroful accum
69	GAGTAACACGT	GGGTAATC!	GCCCTGCA	CTTCMGGGAT	'AA M.leprae
70	GAGTAACACGT	CCCCAATC!	GCCCTGCA	CAGC-GGGAT	'AA M.kansasii
104	GAGTAACACGT	CCCEDATIC	recccireca	CACC-GGGAT	'AA M.gastri
64	GDGTDDCACGT	GGGTAATC'	GCCCTGCA	CATC-GGGAT	'AA M.gordonae
O-1	UNGINACACGT	aaaDawi.Ci	GCCTGCA	CTTC-GGGAT	'AA M.marinum

Figure 2A

TL.



		170	180	190	20	O
109	GCCTGGG	AAACTGGG	TCTAATACCG	CATACCACCA	CCCCA	M.tuberculosis
248	GCCTGGG	AAACTGGG'	тставтассо	GATAGGACCA	CCCCA	_M.tuberculosis
146	GCCTGGG	AAACTGGG'	TCTAATACCC	GATAGGACCA	CEGGA	M.DOVIS
98	GCCTGGG	ABACTGGG	TCTAATACCC	GATAGGACCT		
146	GCCTGGG	ABACTGGG	TOTALTACCE	CATAGGACCIT		M.intracellulare M.paratuberc.
109	GCCTGGG		TOTANTACCO	GATAGGACCE	CAAGA	M.paratuberc.
160	echrece:		TCTAATACCG	GATAGGACCA		
108	GCCTGGG		rcmanacce rcmananacce	GATAGGAC[11]	CAAGG	• -
109	GCCTGG	NACTEGE.	ICTAATACCG	GATAGGACCA	CTTGG	
143	GCCTGGG	VARCIGGG.	ICTAATACCG	GATAGGACCA	AT IIGG	M.gastri
103	GCCTGGG	\	TCTAATACCG	HATAGGACCA	CAGGA	M.gordonae
103	GCCIGGG	WACTEGE.	rctaataccg	GATAGGACCA	CGGGA	M.marinum
				·		
		210		T		
		210	220	230	24	0
149	TGCATGTC	CTTGTGGT	GAAAGCGCT	TTAGCGGTGT	GGAT	M.tuberculosis
288	TGCATGTC	TTGTGGT	GAAAGCGCT	TTAGCGGTGT	GGAT	M.bovis
186	GCATGTO	TTPTGGT6	GAAAGCFTT	TT-ACGGTGT	GGAT	M.avium
138	GCATGTC	TTTAGGTG	GAAAGC-T	TTTGCGGTGTG	GGAT	M.intracellulare
186	GCATGTC	TTOTGGTG	GAAAGCHTT	TTHGCGGTGT	GDAT	M. paratubero
149	dgcatgdc	TTGTGGTG	GAAAGCT	TTIGCGGTGTC	GGAT.	M.scrofulaceum
200	GCATGTC	TTGTGGTG	GAAAGC-TT	TTTGCGGTGC	GGAT	M lenrae
148	GCATGGC	TTGTGGTG	GAAAGC-T	PTHCCGCTGTG	GGAT	M.kansasii
149				TTIGCGGTGTG	GGAT	M dastri
183	CACATGTO	CTATGGTG	GAAAGC-TT	TT-GCGGTGTG	GGAT	M.gordonae
143	THEATGTO	GTGTGGTG	GAAAGE-CT	TTECGTGTG	GGDT.	M marinum
					JOURI	mar man
		250	260	270	280	
189	GAGCCCCC	GGCCTATC	AGCTTGTTC	TCCCCCCCC	CCCE	M.tuberculosis
328	GAGCCCGC	GGCCTATC	7AGC11G11G(FIGGGGTGACG FTGGGGTGACG	GCCT	M.tuberculosis
224	- GEGCCCGC	GGCCTATC	7.001101100	FIGGGGTGACG FIGGGGTGACG	GCCT	M.DOVIS
176	GGGCCGC	GGCCTATC	AGCIIGIIG(TGGGGTGACG	GCCT	M.avium
224	GEGCCGC	CCCCMDMC	AGCTTGTTG(TGGGGTGAIIG	GCCT	M.intracellulare
187	ecccec	GGCCTATC	AGCTTGTTG	TGGGGTGACG	GCCT	M.paratuberc.
239	GGGCCCGC	CCCCMAMO	AGCINGTIG	- TGGGGTGA[]G	GCCT	M.scrofulaceum
186	GGGCCCGC	CCCCMATC	AGCTAATTA(TGGGGTAACG	GCCT	M.leprae
187	GGGGGGGG	GGCCTATC	AGCTTGTTG	FIGGGTGACG	GCCT	M.kansasii
221	GC-CCGC	GGCCTATC	AGCTTGTTG(TGGGGTGACG	GCCT	M.gastri
181	criccocc	GGCCTATC	AGCTTGTTG	TGGGGTGATG	GCCT	M.gordonae
TOT	GEGCCCGC	GGCCTATC	AGCTTGTTG	TGGGGTACG	GCCT	M.marinum

Figure 2B



		450	460	470	480)
389 528 424 376 424 387	AAACCTC AAACCTC AAACCTC AAACCTC	TTTCACCATTTCACCATTTCACCATTTCACCATTTCACCATTTCACCATTTCACCATTTCACCAT	CGACGAAGO CGACGAAGO CGACGAAGO CGACGAAGO CGACGAAGO	ETCCGGGTTCTC ETCCGGGTTTTC ETCCGGGTTTTC ETCCGGGTTTTC ETCCGGGTTTTC	CTCGG CTCGG CTCGG CTCGG	M tuberculosis
439 386 387 420 381	AAACCTC AAACCTC	FTTCACCAT FTTCACCAT FTTCACCAT	CGACGAAGG CGACGAAGG CGACGAAGG	TIGGGAATTC TCGGGTTCTC TCGGGTTCTC TCGGGTTTTC TTGCGGGTTTTC	CTCGG CTCGG CTCGG	M.leprae M.kansasii M.gastri

	1130	1140	1150	116	
1069	TCTCATGTTGCCAGC	ACGTÄÄTGGT	GGGGACTCGT	GAGAG	M. tuberculosis
1708	TUTCATGTTGCCAGC	ACGTAATGGT	GGGGACTCGT	GAGAG	M howis
1104	TCTCATGTTGCCAGC	GGGTAATGCC	GGGGACTCGT	GAGAG	M. avium
1056	TCTCATGTTGCCAGC	GGGTAATGCC	GGGGACTCGT	GAGAG	M.intracellulare
1098	TCTCATGTTGCCAGC	GGGTAATGCA	GGGGACTCGT	GAGAG	M.paratuberc
1064	TCTCATGTTGCCAGC	GGGTAATGCC	GGGGACTCGT	GAGAG	M. scroful aceum
1119	TCTCATGTTGCCAGC	ACGTAATGGT	GGGGACTCGT	GAGAG	M lenrae
1066	TCTCATGTTGCCAGC	GGGTAATGCC	GGGGACTCGT	GAGAG	M. kansasii
1067	TCTCATGTTGCCAGC	gggtaatgcd	GGGGACTCGT	GAGAG	M.gastri
1100	TCTCATGTTGCCAGC	ggigtaatglod	GGGGACTCGT	GAGAG	M dordonae
1061	TCTCATGTTGCCAGC	ACGTAATGGT	GGGGACTCGT	GAGAG	M.marinum

	1250	1260	1270	1280	
1189	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCGAGG	TTAAG I	M.tuberculosis
1328	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCGAGG	TTAAG	M.bovis
1224	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGTAAGG	TTAAG I	M.avium
1176	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCAAGG	TTAAG I	M.intracellulare
1218	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGTAAGG	TTAAG 1	M.paratuberc.
L184	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCAAGG	TTAAG 1	M.scrofulaceum
.239	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCAAGG	TTAAG N	M.leprae
.186	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCGAGG	TTAAG 1	M.kansasii
187	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCGAGG	TTAAG N	M.gastri
1220	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCGAGG	TTAAG N	M.gordonae
1181	CAATGGCCGGTACAA	AGGGCTGCGA	TGCCGCGAGG	TTAAG 1	4.marinum

Figure 2C



	1290	1300	1310	1320
1229	CGAATCCTTA-	AAAGCCGGTCTCA	GTTCGGATCE	GGTCT M.tuberculosis
1368	CGAATCCTTA-	AAAGCCGGTCTCA	GTTCGGATCG	GGGTCT M. bovis
1264	CGAATCCTTTT	AAAGCCGGACTCA	GTTCGGATFIGO	GGTCT M. avium
1216	CGAATCCTTTT	AAAGCCGGTCTCA	GTTCGGATTG	GGGTCT M.intracellular
1258	CGAATCCTTTT	AAAGCCGGACTCA	GTTCGGATIGO	GGGTCT M. Intracellular GGGTCT M. paratuberc.
1224	CGAATCCTTTT	AAAGCCGGTCTCA	ĠŢŢĊĠĠŊŢſĠĠ	GGTCT M.scrofulaceum
1279	CGAATCCTTTT	AAAGCCGGTCTCA	GTTCGCATCGC	GGTCT M.leprae
1226	CGAATCCTTTT	AAAGCCGGTCTC\(\)	GTTCGGATCGC	GGTCT M. Leprae
1227	CGAATCCTTTT	AAAGCCGGTCTCA	GTTCGGATCGG	GGTCT M.gastri
1260	CGAATCCTTTT	AAAGCCGGTCTCA	311000A1000 3TTCGGATCG6	GGTCT M.gordonae
	CGAATCCTTT-	AAAGCCGGTCTCA	STICGOAICGC STTCGCATCGC	GGTCT M.marinum
			31100071000	30GICI M.Marinum
	•			
	7	,		· · · · · · · · · · · · · · · · · · ·
	1330	1340	1350	1360
1268	GCAACTCGACC	COGTGAAGTCGGA	STCGCTAGTA	ATCGCA M.tuberculosis
1407	GCAACTCGACC	ACODOTO, UNO TOPO MADED TO A ABTODO	TTCGCTAGIAA	ATCGCA M. CuberCulogis
1304	GCAACTCGACC	CODTED DETCEED	310301AG1AA 310301AG1AA	ATCGCA M.avium
1256	GCAACTCGACC	CATGAAGTCGGA		ATCGCA M.avium ATCGCA M.intracellular
1298	GCAACTAGACC	- Darca acresea	AAT DA TOBOTE	ATCGCA M.Intracellular ATCGCA M.paratuberc.
1264	GCAACTCGACC	CGTGAAGTCGGA	AAT DA TODOTE	ATCGCA M.scrofulaceum
		CCTCNACTCCCA	JICGCIAGIAA JUCCCUDACUDD	ATCGCA M.Scroiulaceum ATCGCA M.leprae
1266	GCDDCTCGACC	CCGTCNNGTCGGN(JIOGO I AGTAA	ATCGCA M.leprae ATCGCA M.kansasii
1267	GCAACTCGACC	CCGTGMAGTCGGA(THECOMPONE	MCCCA M.Kansasii
1300		CCTCDDCTCCCC	JICGCTAGTAA	TCGCA M.gastri
1260				ATCGCA M.gordonae
<i></i> 00	しつひれいしいけんしい	JOG I GAAG I CGGAU	ラエ しほし エムほうしひひ	CICL+CA M Marinim

Figure 2D

128 39 41	TGCCGAACCCGGAA(TGCCGAACCCGGAA(GCTAAGCCTGC GCTAAGCCTGC	CAGCGCCGAT CAGCGCCAAT	GATAC	M.tuberculosis M.bovis M.phlai
3559 5743	TCCGAACCGGAAG	SCTAAGCCTGH	CAGCGCCGAT	CDTDC	M.leprae M.smegmatis
168 79 81 3599 5782	TGCCCTCACGGG	TGGAAAAGT TGGAAAAGT TGGAAAAGT	'AGGGCACCGC 'AGGACACCGC 'AGGACACTIGC	CGAAC CGAAC	M.phlei

Figure 3



		·····				
		90	100	110	12	
382	GGGAGCT	GTCAACCGA	GCATTGATC	CGAGGATTTC	GAAT	- LM outium
382	GGGAGCT	'GTCAACCGA	GCATTGATCO	CGAGGATTTCC	יית אות בסי	M manatara
1053	GGGAGCT	GTCAACCGA	GCGTGGATC	CGAGGATTTCC	CADAT	M.tuberculosis
467	GGGAGCT	GTCAACCGA	GCGTGGATC	CGAGGATTTC	GAAT	M phlai
392	GGGAGCT	GTCAACCGA	.GCIGITIGIGA TCC	CGDGCDTTTCCC	ת מייטי	M 7
167	GGGAGCT	GTCAACCGA	.GCGTGGATC(CGAGGATTTCC	יים מבו	M dectri
110	GGGAGCT	GTCAACCGA	GCGTGGATCC	CGAGGATTTCC	TAAT	M kangacii
2548	GGGAGCT	GTCAACCGA	GCGTTGATCC	CGAGGATGTCC	GAAT	M.smegmatis
			_			··· smegmae13
				· · · · · · · · · · · · · · · · · · ·		
		170	180	190	20	0
462	GAATATA'	TAGGGTGCG	-GGAGGTAAC	GCGGGGAAGT	GAAA	M avium
462	GAATATA'	FAGGGTGCG:	-GGAGGTAAC	GCGGGGAAGT	'GAAA'	M naratubero
1133	GAATATA	l'AGGGTGCG-	-GGAGGGAAC	GCGGGGAAGT	GAAD	M tuberculogia
547	GAATATA	FAGGCGTTG:	-GGGGGGAAC	GCGGGGAAGT	GAAA	Mohlei
472	GAATATA	PAGGGTHCG-	-GGAGGGAAC	GCGGGGAAGT	CAAA	M lannaa
247	GAATATA!	FAGGGTGCG:	-GGAGGGAAC	GCGGGGAAGT	GAAD	'M dagtri
190	GAATATA!	FAGGGTGCG-	-ggagggaac	GCGGGGAAGT	GAAA	M kangagii
2628	GAATATA	raggegtet-	-gggggaac	GCGGGGAAGT	GAAA	M.smegmatis
						* -
•		250	260		τ-	
		1	260	270	280	
541	-GTCAGTA	GTGGCGAGC	CGAAC-CGGA	ACA-GGCTAA	ACCG	M.avium
541	-GTCAGTA	GTGGCGAGC	CGAAC_CGGA	ACA-GGCTAA	ACCG	M.paratuberc.
1212 .	-GKAJAGTA	GTGGCGAGC	GAACGCGGA:	ACA-GGCTAA:		M tuberquilogia
020	_GIPMGIA	GTGGCGAGC	GAAL AGGGAI	GGAMGGCTAA:		M phlai
551	-GCAAGTA	GTGGCGAGC	GAACGIGGA	ATIATGGCTAA ACATGGCTAA	ACCG	M.leprae
326 - 269 -	-GTCAGTA	GTGGCGAGC	GAACGCGGAI	acanggctaa	ACCG	M.gastri
409	-GTAAGTA	GTGGCGAGC	GAACGCGGA	ACANGGCTAA	ACCG	M.kansasii
2100	JO TEAGTA	GTGGCGAGC	GAACACGGA	gga[[ggctaal	4CFG	M.smegmatis

Figure 4A

DRAFTA

17/31

	290	300	310	320	
578 578 1250 664 590 365 308 2745	CATG—CATGGACAA CATG—CATGGATAA CATG—CATGGGTAA CGTG—CATGTGATA CACA—CATGTCTAA CACG—CATGGGTGA CACG—CATGGGTGA CACG—CATGGGTAA CACG—CATGGGTAA	.CCGGGTAGGGG .CCGGGTGGGGG .CTAGGTAGGGG .CCGGGTAGGGG .CCGGGTAGGGG	TTGTGTGTGC TTGTGTGTGC TTGTGTGTGC TTGTGTGTG	GGGGT M GGGGGT M GGGIGT M GGGGGT M GGGGGT M	I.avium I.paratuberc. I.tuberculosis I.phlei I.leprae I.gastri I.kansasii I.smegmatis
617 617 1289 703 629 404	330 TGTGGGATTGATAT TGTGGGATTGATAT TGTGGGAG-GATAT TGTGGGGCCTGTGT TGTGGGATTGGTAT	GTCTCAGCTCT. GTCTCAGCGCT. GTCTCAACTCT. GTCTCAACTCT. GTCTCAGCTCT.	ACCTGGCTGA ACCGGGCGAT ACCTGGTTGA ACCBGGCTGA	GG-GG M GA-GG M GGCAG M GG-GG M	.avium .paratuberctuberculosis .phlei .leprae .gastri
347 2785	TGTGGGATdGATAC TGTGGGACCTATCT , 370	GTCTCAGCTCT	ACCIDGGCTG A	GG-GG M	.kansasii .smegmatis
742 668 443 386	TAGTCAGAAAGTGTC TAGTCAGAAAGTGTC GAGTCAGAAAGTGTC TAGTGA∏AAAGCAGT TAGTCAGAAAGTGCC GAGTCAGAAAGTGTC CAGTCAGAAAGTGTC CAGTCAGAAAAGTGTC CAGTGAGAAAAGTGTC	CGTGGTTAGCGC CGTGGTTAGCGC CGTGGTTAGCGC CGTGGTTAACGC CGTGGTTAACGC	AAGTGGCCT AAGTGGCCT AAGTGGCCT AAATGGCCT AAGTGGCCT AAGTGGCCT	GGGAT M. GGGAT M. GGGAT M. GGGAT M. GGGAT M. GGGAT M.	avium paratuberc. tuberculosis phlei leprae gastri kansasii smegmatis

Figure 4B

		410	420	430	440	
696 696 136 782 708 483 426 286	GGTCTG GGTCTG GGCCTG GGTCTG GGTCTG GGTCTG	CCGTAGACG CCGTAGTGG CCGTAGACG CCGTAGACG	GTGAGAGCCC GTGAGAGCCC GTGAGAGCCC GTGAGAGCCC	cggtacgcgai Cggtacgcgai Cgtacfcgai Cagtacgcgai CggtacgTgaa	NA-ACC M.avium NA-ACC M.paratuberc.	2
		450	460	470	480	
735 735 1400 820 747 522 465 2902	CGGCACO TGCTGCC TGGCACC CGGCACC CGGCACC	TGCCTAGTA GCTGTCAC TGCCTTGTA TGCCTTGTA TGCCTTGTA	TCAATTCCC TCAATTCCCC TCAATTCCCC	GAGTAGCAGCO GAGTAGCAGCO GAGTAGCAGCO GAGTAGCAGCO	GGGCC M.avium GGGCC M.paratuberc. GGGCC M.tuberculosis GGCC M.phlei GGCC M.leprae GGCC M.gastri GGCC M.kansasii GGCC M.smegmatis	i
			. ·			
		570				
855 855 1526 937 867 642 585 3022	GAGGGAAT GAGGGAAT GAGGGAAT GAGGGAAT	GGTGAAAAC GGTGAAAAC GGTGAAAAC GGTGAAAAC	TACCCCGGG TACCCCGGG TACCCCGGG TACCCCGGG	AGGGBAGTGAI AGGG-AGTGAI AGGGBAGTGAI AGGGBAGTGAI	600 AATA M.avium AATA M.paratuberc. AAGA M.tuberculosis AAGA M.phlei AATA M.leprae AAGA M.gastri AAGA M.kansasii AAGA M.smegmatis	

Figure 4C

		610	620	630	640	
894	4 GTA	CTGAAACCG	FGTGCCTACA	ATCCGTCAGAG		
894						
156	SE GTAC	CTGAAACCG	GTGCCTACA	TCCCTCAGAG	CCTCCT M	<pre>.paratuberctuberculosis</pre>
976	GTAC	CTGAAACCG	GTGCCTACA?	ATCCGTCAGAG ATCCGTCAAAG	CCTCCT M	.tuberculosis
907	GTAC	CTGAAACCGT	GTGCCTACA	ATCCGTCAMAG	ссетет м	.phlei
682	GTAC	CTGAAACCGT	GTGCCTACA?	TCCGTCAGAG	CCTCHT M	.leprae
625	GTAC	CTGAAACCGT	GTGCCTACAA GTGCCTACAA	ATCCGTCAGAG ATCCGTCAGAG	cclocut w	.gastri
306	2 GTAC	CTGAAACCGT	'GFGCFFFFCAA	TCCGTCAGAG TCCGTCAGAG	CCCTIT M	.kansasii
			OPOCITIACA	TOOGTCAGAG	CCCTCG M.	.smegmatis
						
		650	660	670	680	
934	C		GTGGGGTG	ATGGCGTGCC	TOTAL	
934	C					
160	6 TTTC	CTCTCCGGAG	GAGGGGGGGTG	MTCCCCCTCCC.	TTTGA M.	paratuberc. tuberculosis
1016	6 GrT-		TAGTGGGGTG	ATGGCGTGCCT	TTTGA M.	tuberculosis
947	II		GTGGGGTG:	ATGCCGTGCCT	TTTGA M.	phlei
722	T		GTGGGGTG:	ATGGCGTGC	TTTGA M.	leprae
665	Č		GTGGGGTG	ATGGCGTGCCT	TTTGA M.	gastri
3102	ACGTO	T	GTGGGGTG:	ATGGCGTGCCT	TTTGA M.	kansasii
			010000101	ATGGCGTGCCT	TTTGA M.	smegmatis
		690	700	710	720	
959	AGAAT	GAGCCTGCGA	TCAGGGTCAG	GTCGCG AGGT		
23						
959	AGAATO	GAGCCTGCGA	TCDGGGACA(COTCOCCAGGT	TAAC M.i	ntracellulare
1646	AGAATO	GAGCCTGCGAG	TCAGGGACA(CGTCGCGAGGT CGTCGCGAGGT	TAAC M.pa	aratuberc. uberculosis
4						
1046	AGAATO	AGCCTGCG3	TCAGGGACA	GTCGCAAGGT GTCGCGAGGT	TAAC M.bo	ovis
972	AGAATO	AGCCTGCGAG	CAGGGACAI	GTCGCGAGGT	TAAC M.pl	lei
747						
690						
3132						
		JADOD LOCCI.	LCAGGGACAT	GTCGCGAGGT	raac M.sm	negmatis

Figure 4D

84 1126 1052 827	CGACCACACGCGCATA CGTATCCAACCTGTT CGTATCACGTGTGAGCG CGTATCACGCGTAAGCG	ACGCGCGT(ACGCGTC) ACGCGCGTC ACGCGTC ACGCTC ACGCGTC ACGCTC ACGC	-GTGTAGTGGCGTGTAGTGGCGTGTAGTGGCGTGGTAGTGGCGTGGTGAGTGGCGTGGTGGTGGTGGTGGTGTGTGT	I M.intracellulare I M.paratuberc. I M.tuberculosis I M.bovis I M.phlei I M.leprae I M.gastri
827 770	CGTATCACGCGTAAGCG CGTATCGCGCGCGAGCG	;T	GTGTAGTGGCGTG1	'M.leprae 'M.gastri 'M.kansasii

	1050	1060	1070	108	n ·
1307	CAGCCAAACTCCGAA	ATGCCG-TGGT	G-TARANCC		-
2005	CAGCCAAACTCCGAA	TGCCG-TGGT	G-TAFAAGCG	TGGCA	M.paratuberc.
1401	CAGCCAAACTCCGAA	TGCCGATAAG	TGAAAGTIG	TGGCA	M phlo:
1000	CAGCCAAACTCCGAA	TGCCG-TGGT	T-TAAAAGCG	TGGCA	M.Jenrae
1098	CAGCCAAACTCCGAA	TGCCG-TGGT	G-TAMAFGCG	TGGCA	M.gastri
3486	CAGCCAAACTCCGAA	TGCCG-TGGT	G-TAHA-GCG'	TGGCA :	M.kansasii
5 100	CAGCCAAACTCCGAA	TGCCGGTAAG	GCCAAGAGIIG(ggaa i	M.smegmatis

	1170	1180	1190	120	0
1425	AGTGGAAAAGGATGTG	TAGTCGCAG	-GDCDDCCD	70700	
2122	AGTGGAAAAGGATGTG		A-GACAACCA(GAGG	M.paratuberc.
1519	AGTGGGAAAGGATGTC	SCAGICGCAM	N-GACAACCAC	GAGG	M.tuberculosis
1441	AGTGGAAAAGGATGTG	JOAG TUGU-GA	₩GACAACCA(GAGG	M.phlei
1215	AGTGGAAAAGGATGTO	SOAGT'CGCAAZ	I-GACAACCAG	GAGG	M.leprae
3606	AGTGGAAAAGGATGTG	PAGTCGCAGA	GACAACCAG	GAGG	M.kansasii
2000	AGTGGAAAAGGATGTG	AGTCGCAGA	AgaAaaccag	GAGG	M.smegmatis

Figure 4E

	-					
	-	1250	1260	1270	128	0
2201 1598 1520	CTCACTG CTCACTG CTCACTG CTCACTG	GTCAAGTGA GTCAAGTGA GTCAAGTGA GTCAAGTGA GTCAAGTGA	TTATGCGCCG TTATGCGCCG TTGTGCGCCG TTGTGCGCCG TTGTGCGCCG TTGTGCGCCG TTGTGCGCCG	ATAATGTAGC ATAATGTAGC ATAATGTAGC ATAATGTAGC ATAATGTAGC ATAATGTAGC	GGGG GGGG GGGG GGGG GGGG GGGG	M.avium M.paratuberc. M.tuberculosis M.phlei M.leprae M.gastri M.kansasii M.smegmatis
		1290	1300	1310	1320)
2241 1638 1560 1334	CTCAAGC; CTCAAGC; CTCAAGC; CTCAAGC; CTCAAGC;	ACACCGCCGI ACACCGCGI ACACCGCGI ACACCGCGI ACACCGCGI ACACCGCGI	AAGCCGCGCA AAGCCGCGCA AAGCCGCGCA AAGCCGCGCA AAGCCGCGACA AAGCCGCGACA AAGCCGCGACA	ACATTCATCT ACATGCAGCTT ACATCAGCTT ACATTCAGCTT	AT-7	M.avium M.paratuberc. M.tuberculosis
	-	1330	1340	1350	1360	
2280 F 1676 T 1600 G 1367 A 1310 A	GGTGGT GGCTGGT	GTGGGTAGG GTGGGTAGG GTGGGTAGG -TGGGTAGG -TGGGTAGG	GGAGCGTCCC GGAGCGTCCC GGAGCGTCCC GGAGCGTCCC GGAGCGTCCC GGAGCGTCCC GGAGCGTCCC GGAGCGTCCC	CATTCAGCG. CATTCAGCG. CATTCAGCG. CATTCAGCG. CATTCAGCG.	AAG M AAG M AAG M AAG M AAG M	.paratuberc. .tuberculosis .phlei .leprae .gastri

Figure 4F

	1370	1380	1390	1400	
2319 1716 1640 1402 1345	CCTCCGGGTDACCC	GTGGTGGAGGG GTGGTGGAGGG GTGGTGGAGGG GTGGTGGAGGG	STEGGGGAGTE STGGGGGAGTE STGGGGGAGTE STGGGGGAGTE	AGAAT M.avium AGAAT M.paratube AGAAT M.tubercul AGAAT M.phlei AGAAT M.leprae AGAAT M.gastri	osis
		-			
		- -	,		
_	1530	1540	1550	1560	
2479 c 1875 c 1800 c 1562 c 1505 c	GATGGACAACGGG'GGATGGACAACGGG'GATGGACAACGGG'GATGGACAACGGG'GATGGACAACGGG	TTGATATTCCCC TTGATATTCCCC TTGATATTCCCC TTGATATTCCCC	GTACCCGTGT/ GTACCCGTGT/ GTACCCGTGT/ GTACCCGTGTC	ATGGG M.paratuber TGGG M.tuberculo ATGAG M.phlei	sis
1001	1570	1580	1590	1600	
2519 CC 1915 CC 1840 CC 1602 CC 1545 CC	STCCCTGATGAATC SCCCGTGATGAATC SCCCGTGATGAATC	A-GCGGTACTA A-GCGGTACTA TCATTOTGCTA A-GCGGTACTA A-GCGGTACTA A-GCGGTACTA	ACCACCCAAA ACCACCCAAA ACCACCCAAA ACCACCCAAA ACCACC	ACCG M.paratubero ACCG M.tuberculo: ACCM M.phlei ACCG M.leprae ACCG M.gastri	c. sis

Figure 4G

		1610	1620	1.50.0		
1960	3 67.00		1020	1630	1640	
1860	CAT-	CGACCAT-1	CCCCTTCGGG	GC-GTGGCG	ATT-CGG M.	avium
2550	GAT~		LPCCCTTCGGGG CCCCTTCGGGG CCCCTTCGGGGG	GC-GTGGCG7	ATT-CGG M.	oaratubara
1055	GATT	CGAIICAO-1	CCCCTTCGGGG	G-IGTGGAG	TTO-TIGG M	Tuberquieria
1070	9 660-	CGA[[C-AT	CC-TTTCGGGG	E-GTGACG	TTG-GG M	paratuberc. Suberculosis Phlei
16/9	GATH	CGACCATAT	CCCCTTCGGGG	GCTATGGAG	TT-CGG M	enrac
1041	GAT-0	CGATCAC-T	CCCCTTCGGGG CCCCTTCGGGG CCCCTTCGGGG	GA-GTGGAGG	TO-FIGG M	iaet vi
1005	GAT-	GAIICAC-T	CCCCTTCGGGG CCCCTTCGGGGG CTTTCGGGGG	GC-GTGGAGG	TO-TIGG M	and addi
4033	ACCG'	GACCGCAC	CT-TTCGGGG	TGTGGCGI	TGGTGG M	meamoti-
			·		J-E-1-0 110	megmatis
						
		1650	1660	1.674		
1006	CCCM			1670	1680	
1006	GGCTG	CGTGGGAC	CTTCGCTGGTAG	TAGTCAAGC	AATGGG M.a	Vium
2504	GGCTG	CGTGGGAC	CTTCGCTGGTAC CTTCGCTGGTAC	TAGTCAAGC.	AATGGG M p	aratuhera
1006	GGCTG	CGTGGGAAG	CTTCGCTGGTAG CTTCGCTGGTAG CCG-GTGGGTAG	TAGTCAAGC	GAAGGG M. t	uherculosia
1017	GGCTG	CGTGGGAC	CCG-GTGGGTAG	TAGTCAAGC	GATGGG M n	hlei
1677	GGCTG	CGTGGGAAC	CTTCGTTGGTAG	TAGTCAAGC	GATGGG M 1	enrae
1600	GGCTG	CGTGGAGC	CTTCGCTGGTAG	TAGTCAAGC	SATGGG M a	agtri
4071	GGCTG	CATGGGACC	TTCGCTGGTAG TTCG[[TGGTAG	TAGTCAAGC	ATGGG M SI	Medwatid Minadall
						mcymat 15
			-			
		1690	1700	1546		
1026	- CEC-	-	1,00	1710	1720	
1026	CECAC	CGCAGGAAG	GCAGCCGTACC.	AGTCAGTGGT	ATAATAA	/ilim
2025	-GTGAC	CGCAGGAAG	GTAGCCGTACC; GTAGCCGTACC;	AGTCAGTGGT	'AACA- M. ti	berculosia
1057	-GTGAC	GCAGGAAG	GTAGCCGTACCA GTAGCCGTACCA	AGTCAGTGGT	'AATA- M.ph	lei
4111 -	-GTGAC	GCAGGAAG	GEAGCCG TACCA GEAGCCG TACCA	GTCAGTGGT	AATA- M sm	ecmatic
-					: ::.Si	cgmatis
		1730	1740		· · · · · · · · · · · · · · · · · · ·	
1074		·	1740	1750	1760	
1974 -	-CTGGG	GCAAGCCC	TAGAGAGCG	ATAGGCAAA	TCCGT M av	iım
20/2 -	·CTGGG	GCAAGCCGG	TAGGGAGAGCG	ATAGGCAAA	TCCGT M +	heraulasis
2063 -	CDGGG	GIJAAACCIIC	TAGGGGGAGIIG	ATAGGCAAA	TCCGT M nh	Dercarosis
4149 -	cbeeb	FIJAAGCCHG	TAGGGAGTCAG	ATAGGMAAA	rccan M. Kai	isasii
	_			OILINAA'	LCCGT M.sm	∋gmatıs

Figure 4H

	-									
			181		1820		1830		 184	
205	51 (G-AA	TTCGG	ТСЪТСС	ייירייי ל	TCCCT 1				•
205	51 (CG-AA	TTCGG	$TG\Delta TCC$		I GCCAL	IGAAAA	GCCTCI	'A-	M.avium M.paratuberc.
275	51 (G-AA	TTCGG	ቸር አጥሮር የ		TCCCA	IGAAAA	GCCTCT GCCTCT	'A-	M.paratuberc.
214	11 0	CG-AA	TTCGG	TGMTCC			IGAAAA	.GCCTCT .GCCTCT	A-	M.tuberculosis
207	4 0	G-AA	ייירכים. יייירים		THIGH	relicer	IGAAAA	GCCTCT.	A-	M.phlei
183	34 C	G-AA	ייירפפי ייירפפי			reccaa	GAAAA	GCCTCT GCCTCT	A-	
177	7 C	G-AA	TTCGG:	PGATCC		IGCCAA	GAAAA	GCCTCT GCCTCT GCCTCT		
422	8 0	G-AA	TTCCC TTCCC	r GATCC		GCCAA	GAAAA	GCCTCT	A –	
	-	~	11000	IGATCC	THITGCI	.'GCCGA	GAAAA.	GCCTCT.	A-	M.kansasii M.smegmatis
		_	1000				,			
			1850	-	1860		1870	1	880)
2089		CGAGC	ACATA	CACGGC	CCGTA	CCCCAI) DCCDD			
2089	, ,	~~~~~	MOHIN	CACILIG	CCGTAC	ז תרויים יו	しかへつかか	C7 C7 C-		M.avium
2789										M.paratuberc.
2179	• • •		DICALA	. AL 114141	א מדידיים ייויוי	~~~~~	~~~-			M.tuberculosis
			ATIACIAL	1 (4) (4) 41	א תידבור זו ו	~~~~~~	~~~ ~ -			M.phlei
~ ~ . ~			$A \cup A \cup A \cup$. A C 1 -1 -1 -1	יוייים היא כ	マベーマスス	70 CM			M.leprae
-010			AUAUAU	JACIGGO	'ሮሮሞአ	マー・ファット	~ ~ ~ ~ ~ ~			M.gastri
4266	GC	GAGG	ACATA	CACGGC	CCGTAC	CCCDA	ACCEA	CACAGG CACAGG		1.kansasii
					CCCIAC	CCCAA	ACCAA	CACAGG	T N	1.smegmatis
									-	
			1970		1980	1	990	20	00	
2208		GGGG	CCCGGA	ATACC	GTGAAC	ACCCT	recee	rgggag	<u>-</u>	
2208	AG	GGGGG	CCGGA	ATACCI	TTCDDC	እሮሮሮመ፣	TOOOO			.avium
2908	2 200		いししひひみ	\mathbf{A} TAILU	+'I'(ሽሮሮሮሞ፣	Pacaaa			.paratuberc. .tuberculosis
										tuberculosis
2231	AG	3GGG	CCGGA	ATATICO	TGAAC		racaar	GGGAG(phlei
1910										.leprae
1934	AGO	GGGA	CCGGA	ATACCC	ים מבות:	الاحديسا	accee.			.gastri .kansasii
4385	AGO	GGGA	CCCAC	ATGGCG	TGMaba		150001 150005	CCAAGO	: M	.kansasii
		_			, - Olivatio	300111	ACGGC	CCAAGC	: M	.smegmatis
				······································			т		_	
			2010	á	2020	2	030	20	4 n	
2248	GGG	ATTC	GGCCG	CAGAAA	CCTCTC	Combo				.avium
2248	GGG	ATTC	GGCCG	ממבטמי		GGTAG	CGACT	GTTTA	. M	.avium
2948	GGG	ת החות	~~ ~ ~~		CCAGTE	GGTAG	CGACT	-GTTTA	M	.paratuberc.
2338	GGG	GGTG	GGTGG		CCBAR CCBAR	HGGAG	CGACT	-GTTTA	. M	.paratuberc. .tuberculosis
2271	GGG	ATCC	GGILCG	LD C V G V	CCAGTG	HGGAG	CGACT	-GTTTA	M	.phlei
1910				MONDA	∨∪AGT'G	HIGHAG	CGACT	-GTTTA	Μ.	.leprae
	GMG	AGTE!		$n \square n $	CCAGTG	AGAAG	CGACT	TGTTTA	Μ.	.gastri .kansasii
	-60	. 121 + 121	2017 PAGE	MANA	CUAGTG	AGAAG	CGACT	-GTTTA	Μ.	kansasii smegmatis
										-

Figure 41

	2130	2140	2150	216	-
3067 2457 2390 1910 2094	CIGTTAACCCGA-	-AAGGGTGAAG -AAGGGTGAAG 'CGGGGGGTGAAG -AAGGGTGAAG	CGGAGAATTT CGGAGAATTT CGGAGAATTT CGGAGAATTT CGGAGAATTT	AAGCCC AAGCCC AAGCCC AAGCCC	M.avium M.paratuberc. M.tuberculosis M.phlei M.leprae M.gastri
	2250	2260	2270	228	0
3185 2577 2508 1910 2212	GTAACGACTTCCCA GTAACGACTTCTCA GTAACGACTTCTCA GTAACGACTTCTCA GTAACGACTTCTCA GTAACGACTTCTCA GTAACGACTTCTCA	ACTGTCTCAAC ACTGTCTCAAC ACTGTCTCAAC ACTGTCTCAAC	CATAGACTCG CATAGACTCG CATAGACTCG CATAGACTCG	GCGAA GCGAA GCGAA GCGAA	M.paratuberc. M.tuberculosis M.phlei M.leprae M.gastri
	2370	2380	0200		
3305 2697 2628 1910 2332	GTTCGGTACGGTTT GTTCGGTACGGTTT GTTCGGTACGGTTT GGTCGGTACGGTTT GTTCGGTGCGGTTT GTTCGGTACGGTTT	GTGTAGGATAGG GTGTAGGATAGG GTGTAGGATAGG GTGTAGGATAGG	FTGGGAGACTT FTGGGAGACTE FTGGGAGACTE FTGGGAGACTE	TGAA I TGAA I TGAA I TGAA I	M.avium M.paratuberc. M.tuberculosis M.phlei M.leprae M.gastri

Figure 4J

```
2410
                         2420
                                    2430
                                               2440
 2645 GCACABACGCCAGTTTGTGTGGAGTCGTTGTTGAAATACC M.avium
      ATACAGACGCCAGTTTGTATGGAGTCGTTGTTGAAATACC M.intracellulare
 2645 GCACAGACGCCAGTTTGTGTGGAGTCGTTGTTGAAATACC M.paratuberc.
 3345 ACCTGGACGCCAGTTGGGGGGGAGTCGTTGTTGAAATACC M.tuberculosis
284 ACCTGGACGCCAGTTGGGGGGAGTCGTTGTTGAAATACC M.bovis
2737 GCTGGGACGCCAGTTGGGGGGGGGGGGGGGTCGTTGTTGAAATACC M.phlei
2668 Acttdgacgcffagttggggtggagtcgttgttgaaatacc m.leprae
1910
2372 ACCTCAACGCCAGTTGGGGTGGAGTCGTTGTTGAAATACC M.kansasii
4822 GCTCACACCCAGTCTGCGTGGAGTCGTTGTTGAAATACC M.smegmatis
              2450
                         2460
                                    2470
                                               2480
 2685 ACTCTGATCGTATTGGACACCTAACGTCGAACCCT-TAIC M.avium
 433 ACTCTGATCGTATTGGACACCTAACGTCGAACCCT-TATC M.intracellulare
 2685 ACTCTGATCGTATTGGACACCTAACGTCGAACCCT-TATC M.paratuberc.
3385 ACTCTGATCGTATTGGGCATCTAACCTCGAACCCTGAATC M.tuberculosis
324 ACTCTGATCGTATTGGGCATCTAACCTCGAACCCTGAATC M.bovis
2777 ACTCTGATCGTATTGGGCCTCTAACCTCGGACCGTGGATC M.phlei
2708 ACTCTGATIGTATTGACAICTAACCTCGAACCGTATATC M.leprae
1910
2412 ACTCTGATCGTATTGGACACCTAACGTCGAACCCTGAATC M.kansasii
4862 ACTCTGATCGTATTGGGCCTCTAACGTCGGACCGTATATC M. smegmatis
              2690
                         2700
                                     2710
                                                2720
2924 GGTGTCACTCAACGGATAAAAGGTACCCCGGGGATAACGG M.avium
2924 GGTGTCACTCAACGGATAAAAGGTACCCCGGGGATAACAG M.paratuberc.
3625 GGTGTCGCTCAACGGATAAAAGGTACCCCGGGGATAACAG M.tuberculosis
3017 GGTGTCGCTCAACGGATAAAAGGTACCCCGGGGATAACAG M.phlei
2948 GGTGTCGCTCAACGGATAAAAGGTACCCCGGGGATAACAG M.leprae
                                                    M.qastri
2652 GGTGTCGCTCAACGGATAAAAGGTACCCCGGGGATAACAG M.kansasii
5102 GGTGTCCCTCAACGGATAAAAGGTACCCCGGGGATAACAG M.smegmatis
              2730
                         2740
                                     2750
                                                2760
2964 GCTGATCTTCCCCAAGAGTCCATATCGACGGGATGGTTTG M.avium
2964 GCTGATCTTCCCCAAGAGTCCATATCGACGGGATGGTTTG M.paratuberc.
3665 GCTGATCTTCCCCAAGAGTCCATATCGACGGGATGGTTTG M.tuberculosis
3057 GCTGATCTTCCCCAAGAGTCCATATCGACGGGATGGTTTG M.phlei
2988 GCTGATCTTCCCCAAGAGTCCATATCGACGGGATGGTTTG M.leprae
2692 GCTGATCTTCCCCAAGAGTCCATATCGACGGGATGGTTTG M.kansasii
5142 GCTGATCTTCCCCAAGAGTCCATATCGACGGGATGGTTTG M.smegmatis
```

Figure 4K

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2770
                         2780
                                    2790
                                               2800
 3004 GCACCTCGATGTCGGCTCGCCATCCTGGGGCTGGAGCA M.avium
 3004 GCACCTCGATGTCGGCTCGTCGCATCCTGGGGCTGGAGCA M.paratuberc.
 3705 GCACCTCGATGTCGGCTCGTCGCATCCTGGGGCTGGAGCA M.tuberculosis
 3097 GCACCTCGATGTCGGCTCGTCGCATCCTGGGGCTGGAGCA M.phlei
3028 GCACCTCGATGTCGGCTCGTCGCATCCTGGGGCTGAAGCA M.leprae
2732 GCACCTCGATGTCGGCTCGCATCCTGGGGCTGGAGCA M.kansasii
5182 GCACCTCGATGTCGGCTCGTCGCATCCTGGGGCTGGAGCA M.smegmatis
              2810
                         2820
                                    2830
                                              2840
3044 GGTCCCAAAGGTTGGGCTGTTCGCCC-ATTAAAGCGGCAC M.avium
3044 GGTCCCAAGGGTTGGGCTGTTCGCCC-ATTAAAGCGGCAC M.paratuberc.
3745 GGTCCCAAGGGTTGGGCTGTTCGCCC-ATTAAAGCGGCAC M.tuberculosis
3137 GGTCCCAAGGGTTGGGCTGTTCGCCC-ATTAAAGCGGCAC M.phlei
3068 GGTCCCAAGGGTTGGGCTGTTCGCCC-ATTAAAGCGGCAC M.leprae
1910
2772 GGTCCCAAGGGTTGGGCTGTTCGCCC-ATTAAAGCGGCAC M.kansasii
5222 GGTCCCAAGGGTTGGGCTGTTCGCCCGATTAAAGCGGCAC M.smegmatis
             3050
                        3060
                                   3070
                                             3080
3283 CAAGATCAGGTTT-CTCACCCTTTTAGAGGGATAAGGCCC M.avium
638 CAAGATCAGGTTT-CTCACCCTTTTAGAGGGGATAAGGCCC M.intracellulare
3283 CAAGATCAGGTTT-CTCACCCTTTTAGAGGGGATAAGGCCC M.paratuberc.
3984 CAAGATCAGGTTT-CTCACCCACTTGGTGGGATAAGGCCC M.tuberculosis
570 CAAGATCAGGTTT-CTCACCCACTTGGTGGGATAAGGCCC M.bovis
3376 CAAGAQCAGGQTT-CTCACCCTQTAGGAGGGATAAGGCCC M.phlei
3307 CAA
                                                 M.leprae
1910
3011 CAAGATCAGGGTT-CTCACCCAGTTGGTGGGATAAGGCCC M.kansasii
5462 CAAGAGCAGGGTT-CTCACCCTGTAGGAGGGGATAAGGCCC M.smegmatis
             3090
                        3100
                                   3110
                                             3120
3322 CCCGC-AGACCACGGGATTGATAGGCCAGACCTGGAAGCT M.avium
677 CCCGC-AGACCACGGGTTCGATAGGCCAGACCTGGAAGCT M.intracellulare
3322 CCCGC-AGATCACGGGATTGATAGGCCAGACCTGGAAGCT M.paratuberc.
4023 CCCGC-AGAACACGGGTTCAATAGGTCAGACCTGGAAGCT M.tuberculosis
609 CCCGC-AGAACACGGGTTCAATAGGTCAGACCTGGAAGCT M.bovis
3415 CCCGC-AGACCACGGGATGGATAGACCAGACCTGGAGGCA M.phlei
3309
                                                 M.leprae
1910
                                                 M.gastri
3050 CCCGC-AGAACACGGGTTGGATAGGCCAGACCTGGAAGCT M.kansasii
5501 CCCGC-AGACCACGGGATTGATAGACCAGACCTGGAAGC M.smegmatis
```

Figure 4L

						
		130	140	150	16	0
107	GAGTAA	CACGTGGG	CAATCTGCCCT	GCACTTC-G	CCATA	M arrium
59	GAGTAA	CACGTGGG	CAATCTGCCCT	'GCACTTC-G	CCDTAN	M introgallula
107	GAGTAA	CACGTGGG	JAATCTACCCT	'GCACTTC-G	CCDTAN	M naratuhana
7G	GAGTAA	CACGTGGG	CAATCTGCCCT	GCACTTC-G	CCDTAN	M caroful accum
70	GAGTAA	CACGTGGG	lgatetgeeet	GCACTTC-G	ממידמים	M tuborquilogi-
209	GAGTAA	CACGTGGG	rga teteceet	GCDCTTC-C	ממידית ביים	M bassad
120) GAGTAA	CACGTGGG	NAATCTGCCCT	GCACTTCAG	GGATAA	M lennae
69	GAGTAAC	JACGTGGGG	CAATCTGCCCT	GCACACC-G	ZZTZ	M kangagii
70	GAGTAA	CACGTGGG	CAATCTGCCCT	GCACACC-G	GGATAA	M.gastri
104	GAGTAA	CACGTGGG	NAATCTGCCCT	GCACATC-G	AATADD	M cordonae
64	GAGTAA	CACGTGGGC	GATCTGCCCT	GCACTTC-G	GGATAA	M.marinum
,						
		· · · · · · · · · · · · · · · · · · ·				
		450	460	470	48	0
424	AAACCTC	TTTCACCA	TCGACGAAGG	TCCGGG TTT	гстсее	M avrium
376	AAACCTC	TTTCACCA	TCGACGAAGG	TCCGGGTTT	TCTCGG	M.intracellulare
424	AAACCTC	TTTCACCA	TCGACGAAGG	TCCGGGTTT'	TCTEGG.	M paratubero
387	AAACCTC	TTTCACCA	TCGACGAAGG	CTCA dt'	TTGTGG	M. scroful aceum
389	AAACCTC	TTTCACCA	TCGACGAAGG'	rccgggttd	TCTCGG	M. tuberculosis
528	AAACCTC	TTTCACCA	.TCGACGAAGG	rccgggttd:	CTCGG	M.bovis
439	AAACCTC	TTTCACCA	.TCGACGAAGG'	FCTGGGAAT'	rcrcgg	M.lenrae
386	AAACCTC	TTTCACCA	TCGACGAAGG'	CCGGGTTO	TCTCGG	M_kansasii
387	AAACCTC	TTTCACCA	.TCGACGAAGG'	rccgggmmdr	rcrcee.	M dastri
420	AAACCTC	TTTCACCA	.TCGACGAAGG'	PCCGGGTTT:	CTCGG	M.gordonae
381	AAACCTC	TTTCACCA	TCGACGAAGG'	TTCGGGTTT:	CTCGG	M.marinum
						
		490	500	510	520)
429	ATTGACGG	TAGGTGGF	GAAGAAGCAC	CGGCCAACT	ACGTG	M.tuberculosis
568	ATTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACI	ACGTG	M.bovis
464	ATTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACT	ACGTG	M.avium
416	ATTGACGG	TAGGTGGF	GAAGAAGCAC	CGGCCAACT	ACGTG	M.intracellulare
464	ATTGACGG	TAGGTGGA	GAAGAAGCAC	ACI	'ACGTG	M. paratubero.
424	GTTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACI	'ACGTG	M.scrofulaceum
479	ATTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACT	'ACGTG	M.leprae
426	ATTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACT	ACGTG	M. kansasii
427	ATTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACT	'ACGTG	M.gastri
460	GGTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACT	'ACGTG	M.gordonae
421	ATTGACGG	TAGGTGGA	GAAGAAGCAC	CGGCCAACT	'ACGTG	M.marinum

Figure 5A

antik (G. Geografiakse

	1130	1140	1150	1160
1104	TCTCATGTTGCCAG	GGGTAATGC	GGGGACTCG	TCACAC M orrivon
1056	TCTCATGTTGCCAG	CGGGTAATGCC	GGGGACTCG	TGAGAG M.intracellulare
1098	TCTCATGTTGCCAG	CGGGTAATGCM	GGGGACTCG	TGAGAG M.Intracellulare TGAGAG M.paratuberc.
1064	TCTCATGTTGCCAG	CGGGTAATGCG	CCCCACTCC	TGAGAG M.paratuberc. TGAGAG M.scrofulaceum
1069	TOTOMICTIC CONC	CP CCLANTGCC	GGGGACTCG	TGAGAG M.scrofulaceum TGAGAG M.tuberculosis
1200	TCTCATGTTGCCAG	CACGTAATGGT	GGGGACTCG	TGAGAG M.tuberculosis
1110	TCTCATGTTGCCAG	CACGTAATGGT	GGGGACTCG	TGAGAG M.bovis
1066	TCTCATGTTGCCAG	CACGTAATGGT	GGGGACTCG'	TGAGAG M.leprae
1000	TCTCATGTTGCCAG	CGGGTAATGCC	ggggactcg [,]	TGAGAG M.kansasii
1067	TCTCATGTTGCCAG	CGGGTAATGCC	GGGGACTCG'	TGAGAG M.gastri
1100	TCTCATGTTGCCAG	CGGGTAATG <u>CC</u>	GGGACTCG'	TGAGAG M.gordonae
1061	TCTCATGTTGCCAG	CACGTAATGGT	GGGGACTCG'	TGAGAG M.marinum
		-		
	1290	1300	1310	1320
1264	CGAATCCTTTTAAA	GCCGGACTCAG	TTCGGATTG	GGTCT M avium
1216	CGAATCCTTTTAAA	GCCGGMCTCAG	ΫͲϹϾϾϪͲͲϾϤ	GGTCT M.intracellulare
1258	CGAATCCTTTTAAA	GCCGGBCTCAG	PTCGGNTTG(GGTCT M.Incracellulare
1224	CGAATCCTTTTAAA	GCCGGMCTCAG	rmcggamHg0	GGTCT M.scrofulaceum
1229	CGAATCCTTA-AAA	GCCGCTCTCTCT	reccannoc	GGTCT M.scrolulaceum
1368	CGAATCCTTA-AAA	GCCCCTCTCTCTCTCT	TOGGATOGG	GGTCT M.tuberculosis
1279	CGAATCCTTTTAAA	CCCCCMCTCAG.	TCGGATOG	GGTCT M.DOVIS
1226	CCAATCCTTTTAAA	CCCCCITCTCAG.	TCGGATOG	GGGTCT M.leprae GGGTCT M.kansasii
1227	CCARCOMMUNA	GCCGGTCTCAG	PICGGATOGO	GGTCT M.kansasii
1260	CGAATCCTTTTAAA	GCCGGHCTCAG'	TCGGATOGG	GGTCT M.gastri
1200	CGAATCCTTTTAAA	GCCGGIICTCAG	TTCGGATCGG	GGTCT M.gordonae
1221	CGAATCCTTTEAAA	GCCGGIICTCAG	TCGGATGG	GGGTCT M.marinum
				r -
	1330	1340	1350	1360
1304	GCAACTCGACCCCA	TGAAGTCGGAGT	CGCTAGTA	ATCGCA M.avium
1256	GCAACTCGACCCCA'	TGAAGTCGGAGT	CGCTAGTA	TCGCA M.intracellulare
1298	GCAACTAGACCCAA'	TGAAGTCGGAGT	CGCTAGTA	ATCGCA M.paratuberc.
1264	GCAACTCGACCCCG	TGAAGTCGGAGT	CGCTAGTAE	ATCGCA M.scrofulaceum
1268	GCAACTCGACCCCG	TGAAGTCGGAGT	CCCTA CTA A	ATCGCA M.tuberculosis
1407	GCAACTCGACCCCG	- C. 2.C 1 C C C A C 1	CCCTAGIAP	TCCCA M hovis
1319	GCAACTCGACCCCG	TOARGICGCAAT	CCCMPCMPTA	MCGCA M.DOVIS
1266	GCANCTCGACCCCG	IGAAG ICGGAGI	CGCTAGTAA	TCGCA M. Leprae
1200	CCARCICGACCCCG	TGAAGTCGGAGT	CGCTAGTA	TCGCA M.kansasii
120/	GCAACTCGACCCCG	I'GAAGTCGGAGT	CGCTAGTA	TCGCA M.gastri
1300	GUAACTCGACCCCG	rgaagtcggagi	CGCTAGTA	TCGCA M.gordonae
1260	GCAACTCGACCCCG	rgaagtcggagt	CGCTAGTAP	TCGCA M.marinum

Figure 6

M.avium 23S.

843 866 883 | S65 866 | S67 866 | S6

M. tuberculosis 16S:

Figure 7